

HRS DOCUMENTATION RECORD--REVIEW COVER SHEET

Name of Site: Diaz Chemical Corporation

Date Prepared: February 2004

Contact Persons

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Pathways, Components, or Threats Not Scored

The Ground Water, Surface Water, and Soil Exposure Pathways are not scored because the listing decision is not significantly affected by those pathways. These pathways are adversely affected as the information in the HRS documentation record indicates.

Numerous spills to the ground, storm sewers, and nearby Sandy Creek have occurred throughout Diaz' operational history [Ref. 13, pp. 12 through 16]. A spill of ethyl chloropropane in October 1986 resulted in neighbor complaints of odors in their homes [Ref. 13, p. 13]. Several bromine spills were reported between 1986 and 1999. A bromine spill in October 1999 resulted in evacuation of the Diaz plant [Ref. 13, pp. 13, 15, 16]. Other chemicals that were spilled between 1985 and 1999 included hexane, nitric and sulfuric acids, process water and sludge, triethylamine, acetic anhydride, para-chlorobenzotrifluoride (PCBTF), ferric chloride anhydrous, dichlorobenzotrifluoride, dibromobenzene, acetic acid, and 3,4-dimethoxytoluene [Ref. 13, pp. 12 through 16]. Diaz reported surface water discharges of more than 10,000 pounds of Toxics Release Inventory (TRI) chemicals from 1987 through 2001 [Ref. 3, p. 14]. Remedial Investigation (RI) results have revealed that soils and ground water on the property and nearby are contaminated with volatile organic compounds (VOC) and semivolatile organic compounds (SVOC). Contaminants detected in soil and ground water include 1,2-dichloroethane (a.k.a. EDC); vinyl chloride; 1,2-dibromoethane (a.k.a. EDB); benzene; xylene; ethylbenzene; and a number of brominated chemical intermediates [Ref. 10, pp. 8, 11 through 23, 27, 28]. A prevailing downward gradient has carried contaminants through the overburden at the property into the shallow bedrock aquifer [Ref. 10, pp. 31, 38, 104, 105].

Diaz employed 55 workers at the plant until the company filed for bankruptcy and abandoned the facility in June 2003. There is observed soil contamination at the plant and in neighboring residential yards. The January 2002 release resulted in the relocation of 15 families from neighboring homes [Ref. 9, p. 1; 12, p. 1; 14, pp. 4, 5; 15, p. 1; 16, p. 4].

HRS DOCUMENTATION RECORD

Name of Site: Diaz Chemical Corporation Date Prepared: February 2004
CERCLIS ID: NYD067532580
EPA Region: 2
Street Address of Site: 40 Jackson Street, Holley, NY 14470
County and State: Orleans, NY
General Location in the State: western NY, about 25 miles west of Rochester
Topographic Map: Holley, NY
Latitude: 43° 13' 22.6" North Longitude: 078° 01' 45.4" West

[Ref. 3, p. 1; 4, p. 1; 5, p. 1; 6, p. 1]

Scores

Ground Water Pathway	Not Scored
Surface Water Pathway	Not Scored
Soil Exposure Pathway	Not Scored
Air Pathway	100.00

HRS SITE SCORE 50.00

WORKSHEET FOR COMPUTING HRS SITE SCORE
Diaz Chemical Corporation

	<u>S</u>	<u>S²</u>
1. Ground Water Migration Pathway Score (S _{gw}) (from Table 3-1, line 13)	<u>Not Scored</u>	
2a. Surface Water Overland/Flood Migration Component (from Table 4-1, line 30)	<u>Not Scored</u>	
2b. Ground Water to Surface Water Migration Component (from Table 4-25, line 28)	<u>Not Scored</u>	
2c. Surface Water Migration Pathway Score (S _{sw}) Enter the larger of lines 2a and 2b as the pathway score.	<u>Not Scored</u>	
3. Soil Exposure Pathway Score (S _s) (from Table 5-1, line 22)	<u>Not Scored</u>	
4. Air Migration Pathway Score (S _a) (from Table 6-1, line 12)	<u>100.00</u>	<u>10,000.00</u>
5. Total of S _{gw} ² + S _{sw} ² + S _s ² + S _a ²	<u>10,000.00</u>	
6. HRS Site Score Divide the value on line 5 by 4 and take the square root	<u>50.00</u>	

AIR MIGRATION PATHWAY SCORESHEET
Diaz Chemical Corporation

AIR MIGRATION PATHWAY Factor Categories & Factors	MAXIMUM VALUE	VALUE ASSIGNED
Likelihood of Release		
1. Observed Release	550	550
2. Potential to Release:		
2a. Gas Potential to Release	500	not scored
2b. Particulate Potential to Release	500	not scored
2c. Potential to Release (higher of lines 2a and 2b)	500	not scored
3. Likelihood of Release	550	550
Waste Characteristics		
4. Toxicity/Mobility	*	10,000
5. Hazardous Waste Quantity	*	10,000
6. Waste Characteristics	100	100
Targets		
7. Nearest Individual	50	45
8. Population		
8a. Level I Concentrations	**	0
8b. Level II Concentrations	**	1,096.15
8c. Potential Contamination	**	6
8d. Population (lines 8a+8b+8c)	**	1,102.15
9. Resources	5	not scored
10. Sensitive Environments:	**	not scored
10a. Actual Contamination		not scored
10b. Potential Contamination		not scored
10c. Sensitive Environments (lines 10a + 10b)		not scored
11. Targets (lines 8d+9+10c)		1,147.15
12. AIR PATHWAY SCORE (lines 3 x 6 x 11)/82,500	100	100.00

* Maximum value applies to waste characteristics category.

** Maximum value not applicable

REFERENCES

Reference Number	<u>Description of the Reference</u>
1.	U.S. Environmental Protection Agency (EPA). <u>Revised Hazard Ranking System, Final Rule, 40 CFR 300, Appendix A</u> . Federal Register. December 14, 1990. [137 pages]
2.	EPA. <u>Superfund Chemical Data Matrix, SCDM Data Version: 1/27/2004, Appendices B-I, B-II, and C</u> . January 2004. [54 pages]
3.	EPA - Envirofacts Warehouse. [Online] <u>Facility Registry System (FRS) - Facility Detail Report, Envirofacts Data Warehouse - MultiSystem Report, and Toxics Release Inventory (TRI) - Envirofacts Report for Diaz Chemical Corporation</u> . Accessed and printed December 4, 2003. [52 pages]
4.	Diaz Chemical Corporation (DIAZ). <u>Diaz Background</u> , http://www.diazchem.com/background.htm . Accessed and printed February 11, 2003. [2 pages]
5.	U.S. Department of the Interior Geological Survey (USGS). <u>Holley Quadrangle, New York, 7.5-Minute Series (Topographic)</u> . 1950, photoinspected 1976. [1 page]
6.	Gilliland, Gerry, Weston Solutions, Inc. (WESTON). <u>Project Note to Diaz Chemical Corp. site file, Subject: Site Latitude/Longitude Coordinates</u> . December 23, 2003. [1 page]
7.	McDermott, Meaghan M., Democrat and Chronicle. <u>EPA testing ex-Diaz plant site</u> . June 26, 2003. [2 pages]
8.	Spychalski, Nancy, Town of Murray Assessor's Office. <u>Fax to Gerry Gilliland, Weston Solutions, Inc. (WESTON), Re: Parcels owned by Diaz Chemical Corp.</u> October 23, 2003. [4 pages]
9.	EPA. <u>2003 News Release: EPA orders Diaz Chemical to address problems at its facility</u> . April 16, 2003. [2 pages]
10.	Haley & Aldrich of New York (H&A). <u>Report on Remedial Investigation, Diaz Plant, Holley, New York, Site No. 837009</u> . Prepared for Diaz Corporation. February 2000. [229 pages]
11.	Gilliland, Gerry, WESTON. <u>Telecon Note with attachments, Conversations with Dwayne Harrington, EPA, Re: Inventory of Chemicals Abandoned at Diaz Chemical</u> . October 7 and 8, 2003. [11 pages]
12.	Office of New York State Attorney General Eliot Spitzer. <u>Press Release: State files suit and wins court order to protect Orleans Co. residents displaced by chemical explosion</u> . New York Department of Law. March 11, 2002. [2 pages]
13.	White, Linda E., Supreme Court of the State of New York. <u>Verified Complaint against Diaz Chemical Corporation by the State of New York and Erin M. Crotty as Commissioner of the New York State Department of Environmental Conservation (NYSDEC)</u> . March 8, 2002. [22 pages]
14.	Reid, Ronald J. III, DIAZ. <u>Letter with enclosure to Daniel Walsh, NYSDEC, Re: AR54 Disk Rupture, 1/5/02</u> . March 13, 2002. [35 pages]
15.	New York State Department of Health (NYSDOH). <u>Diaz Chemical Corporation's January 5, 2002 Air Release, Summary of Draft Public Health Assessment and Next Steps</u> . Date unknown. [3 pages]

REFERENCES (continued)

Reference Number	<u>Description of the Reference</u>
16.	NYSDOH. <u>Public Health Assessment, Diaz Chemical Corporation January 5, 2002 Air Release.</u> November 26, 2002. [96 pages]
17.	Reid, Ronald J. III, DIAZ. <u>Letter with enclosure to Robert Vaughan, State of New York Office of the Attorney General, Re: 2-chloro-6-fluorophenol release of January 5, 2002.</u> January 18, 2002. [7 pages]
18.	Doctoryourself.com. <u>Diaz Dangers, Volume 1.</u> February 2002. [4 pages]
19.	Walsh, Dan, NYSDEC. <u>Inspection Report, Diaz Chemical Corp., DAR ID 3432010060, Date of Inspection: 1/8/02.</u> Air Resources Division. January 9, 2002. [2 pages]
20.	Gilliland, Gerry, WESTON. <u>Project Note to Diaz Chemical Corp. site file, with attachments, Subject: Estimated Populations Within 4 Miles of Site.</u> December 23, 2003. [54 pages]
21.	H&A. <u>Phase I Technical Memorandum, Diaz Plant - Phased RI/FS, Holley, New York, Site No. 837009.</u> Prepared for Diaz Chemical Corporation. November 1994. [566 pages]
22.	Walker, Wendy, NYSDEC. <u>Memorandum to Frank Ricotta, Subject: Diaz Chemical.</u> February 12, 1991. [8 pages]
23.	Reid, Ron, DIAZ. <u>Memorandum to Tom McAllister, Subject: Wastewater Discharge Permit.</u> February 19, 1999. [12 pages]
24.	Quiñones, Jorge L., WESTON. <u>Field Logbook No. SAT.071.001 for Diaz Chemical Corporation.</u> April 22, 2003 to June 30, 2003. [64 pages]
25.	Cardile, Joseph, EPA. <u>Memorandum to file through Karl Mangels, Re: August 29, 2002 Inspection of Diaz Chemical Corporation.</u> September 9, 2002. [12 pages]
26.	Quiñones, Jorge L., WESTON. <u>Transmittal Letter to Jennifer Feranda, EPA, Subject: [Enclosed] Sampling Trip Report - Diaz Chemicals Corporation, Holley, New York.</u> July 18, 2003. [173 pages]
27.	Trotter, Janet, Region 2, ESAT/RSCC. <u>Record of Communication to W. Scott Butterfield, WESTON, Subject: [Enclosed] Quality Assured Data, Diaz Chemical Corp. 31846 Librty Org. (1) SDG# B0Z03, (2) SDG# B0JH0.</u> September 9, 2003. [466 pages]
28.	Trotter, Janet, Region 2, ESAT/RSCC. <u>Record of Communication to W. Scott Butterfield, WESTON, Subject: [Enclosed] Quality Assured Data, Diaz Chemical Corp 31846 Librty Org 17 Water, SDG# B0Z21.</u> August 26, 2003. [192 pages]
29.	Talpey, James G. and Lawrence P. Smith, H&A. <u>Letter to Ronald J. Reid III, DIAZ, Subject: [Enclosed] RI/FS Phase V Technical Memorandum.</u> December 29, 1998. [386 pages]
30.	Gilliland, Gerry, WESTON. <u>Project Note with attachments to Diaz Chemical Corporation site file, Subject: Chemical Information.</u> December 4, 2003. [148 pages]

INTRODUCTION

The Diaz Chemical Corporation ("Diaz") site (CERCLIS ID No. NYD067532580) is the release and associated sources from a defunct chemical manufacturing plant located at 40 Jackson Street in the Village of Holley, Orleans County, New York, approximately 25 miles west of Rochester [Ref. 3, pp. 1, 6; 4, p. 1; 7, p. 1]. The property consists of Town of Murray parcels 87.8-2-38.1 and 88.5-1-60.211 [Ref. 8, pp. 1, 2, 4], and its geographic coordinates are 43° 13' 22.6" north latitude and 078° 01' 45.4" west longitude [Ref. 5, p. 1; 6, p. 1]. The property is bordered by the residential community of Holley to the north and east, and by railroad tracks along its southwestern edge [Ref. 5, p. 1; 8, pp. 2, 4; 9, p. 1; 10, pp. 10, 98]. The 5.5-acre, wedge-shaped property was used for food processing and cider vinegar production from 1890 until 1974 [Ref. 10, p. 8]. From 1974 until June 2003, Diaz manufactured and stored specialty intermediate chemicals for the pharmaceutical, agricultural, photographic, color and dye, and personal care products industries [Ref. 4, p. 1; 7, p. 1; 9, p. 1; 10, p. 8]. The company specialized in brominations and other processes to produce halogenated aromatic compounds [Ref. 4, p. 1]. When Diaz filed for bankruptcy and abandoned the facility in June 2003, the company left behind, as waste, a multitude of chemicals in drums and tanks [Ref. 7, p. 1; 11, pp. 1 through 11]. The property is currently under the jurisdiction of the Response and Prevention Branch of U.S. Environmental Protection Agency (EPA) pending removal of the abandoned chemicals [Ref. 11, p. 1].

During its period of operation, Diaz had a history of recurring releases into the air from its facility. Hundreds of citizen odor complaints were lodged against the company [Ref. 12, p. 2; 13, p. 2]. In January 1977, a release of nitric acid and sulfuric acid into the air caused area residents to experience burning eyes and skin and a stinging sensation in their throats. Diaz paid for repainting cars damaged by the release. During a similar incident in December 1991, nearby residents were instructed to remain in their homes with the windows shut [Ref. 13, pp. 10, 11]. Fugitive releases of ammonia in January 1985, chlorine gas in August 1990, and m-bromofluorobenzene in March 1995 all resulted in odor complaints from nearby residents. Other compounds that were released to the air through fugitive emissions between 1977 and 1999 included the herbicides lactofen and trifluralin, nitrogen, potassium hydroxide, methanol, tetraethyl ammonium bromide, bromoacetophenone, and dimethyl sulfoxide gas [Ref. 13, pp. 11 through 16].

According to records maintained by EPA in its Toxics Release Inventory (TRI), Diaz reported releasing 188,105 pounds of TRI chemicals via air emissions from 1987 through 2001 [Ref. 3, pp. 13, 14]. The following chemicals are reported by Diaz as being released through fugitive and stack air emissions during that time period [Ref. 3, pp. 15 through 18]:

<u>TRI Chemical</u>	<u>Fugitive Emissions (pounds)</u>	<u>Stack Emissions (pounds)</u>
1,2-Dibromoethane	1,055	1,055
1,2-Dichloroethane	2,850	3,350
Acetophenone	500	10
Ammonia	1,500	250
Ammonium nitrate	5	5
Ammonium sulfate	5	5
Benzene	11,000	8,300
Bromine	4,750	4,750
Chlorine	2,100	2,450
Chlorobenzene	1,500	9,750
Dichloromethane	73,600	23,050
Ethylbenzene	300	300
Hydrochloric acid	2,350	2,350
m-Cresol	650	700
Methanol	3,250	3,750
n-Butyl alcohol	2,600	1,610
Nitric acid	2,100	2,355
Sulfuric acid	2,100	2,850
Toluene	2,250	2,250
Xylene (mixed isomers)	2,250	2,250

INTRODUCTION (continued)

On January 5, 2002, an accidental release from a non-permitted emission point at Diaz splattered chemicals onto downwind residential properties [Ref. 9, p. 1; 13, pp. 7, 8; 14, p. 3]. The incident occurred when Diaz employees overheated a closed reactor vessel, leading to the rupture of a safety valve and release of approximately 75 gallons of technical grade 2-chloro-6-fluorophenol (CFP, a.k.a 2C6FL) into the air [Ref. 13, p. 7; 14, pp. 2, 3]. CFP is a specialty organic chemical that Diaz was producing for a pharmaceutical company [Ref. 15, p. 1; 16, p. 4; 17, p. 1]. In addition to CFP, the release contained other phenolic compounds and toluene [Ref. 9, p. 1; 14, pp. 2, 3, 7]. The splash zone extended east-northeast of Diaz into the neighboring residential community [Ref. 14, pp. 3, 4, 5, 34, 35; 16, pp. 4, 5, 9, 24, 59 through 65]. By January 16, 2002, New York State Department of Health (NYSDOH) had defined an Area of Greater Impact to extend more than ¼ mile from the reactor vessel based on the visual observation of droplets deposited on homes, yards, and vehicles [Ref. 16, pp. 11, 34; 20, pp. 1, 7]. Analytical results for wipe and vegetation samples collected by NYSDOH on January 14 and 15, 2002 indicated the presence of CFP and related compounds within the Area of Greater Impact. There was visual evidence of contamination in the form of staining, residues, or discoloration at many of the wipe sample locations and on the vegetation samples [Ref. 16, pp. 34, 39, 59 through 65, 70]. There was also visual evidence of the release on a swing set located 0.31 mile east-northeast of the reactor [Ref. 20, pp. 1, 2, 7].

On the night of the occurrence, a neighbor called 911 to report a strange odor in the house and the onset of burning eyes [Ref. 13, p. 8; 14, p. 3; 18, p. 4], and Diaz received several reports of odors in and east of the Village of Holley [Ref. 14, p. 34]. A Diaz employee noticed the odor as he entered the Village on the evening of January 6, and a New York State Department of Environmental Conservation (NYSDEC) inspector observed a phenolic odor east of the plant on January 8 [Ref. 14, p. 10; 19, p. 1]. Odors from the release were also reported 12 miles away in the Village of Hilton [Ref. 13, p. 8; 16, p. 4]. Residents exposed to the release reported suffering from sore throats, headaches, nosebleeds, eye and skin irritation, nausea, vomiting, difficulty in breathing, skin rashes, kidney pain, and loss of appetite [Ref. 12, p. 1; 13, pp. 1, 2, 8; 15, p. 1; 16, pp. 1, 2, 23]. Diaz funded the relocation of 15 families from their homes near the plant to hotels, motels, and apartments [Ref. 9, p. 1; 12, p. 1; 14, pp. 4, 5; 15, p. 1; 16, p. 4]. CFP was detected in urine samples collected from some of those displaced residents in January, March, April, and May 2002 [Ref. 16, pp. 10 through 13, 34, 46]. EPA inspections in March, June, and August 2002 revealed that Diaz was not operating with appropriate safeguards to protect its employees and the surrounding residential community [Ref. 9, p. 1].

The evidence presented above establishes observed release by direct observations to the air pathway and Level II actual contamination within the 0- to ¼-mile and ¼- to ½ -mile distance categories [Ref. 1, pp. 51592, 51651, 51660, 51661]. Populations within ½ mile of the site include 1,089 residents and 7 day-care students [Ref. 20, pp. 1, 3 through 7].

In addition to the air releases, numerous spills to the ground, storm sewers, and nearby Sandy Creek also occurred throughout Diaz' operational history [Ref. 13, pp. 12 through 16]. A spill of ethyl chloropropane in October 1986 resulted in neighbor complaints of odors in their homes [Ref. 13, p. 13]. Several bromine spills were reported between 1986 and 1999. A bromine spill in October 1999 resulted in evacuation of the Diaz plant [Ref. 13, pp. 13, 15, 16]. Other chemicals that were spilled between 1985 and 1999 included hexane, nitric and sulfuric acids, process water and sludge, triethylamine, acetic anhydride, para-chlorobenzotrifluoride (PCBTF), ferric chloride anhydrous, dichlorobenzotrifluoride, dibromobenzene, acetic acid, and 3,4-dimethoxytoluene [Ref. 13, pp. 12 through 16]. Diaz reported surface water discharges of more than 10,000 pounds of TRI chemicals from 1987 through 2001 [Ref. 3, p. 14].

From 1994 to 1999, Diaz conducted a six-phase Remedial Investigation (RI) under the guidance of NYSDEC. The RI results revealed that soils and ground water on the property and nearby are contaminated with volatile organic compounds (VOC) and semivolatile organic compounds (SVOC). Contaminants detected in soil and ground water include 1,2-dichloroethane (a.k.a. ethylene dichloride, or EDC); vinyl chloride; 1,2-dibromoethane (EDB); benzene; xylene; ethylbenzene; and a number of brominated chemical intermediates [Ref. 10, pp. 8, 11 through 23, 27, 28]. A prevailing downward gradient has carried contaminants through the overburden at the property into the shallow bedrock aquifer [Ref. 10, pp. 31, 38, 104, 105]. The nearest drinking water well is the Glidden public supply well, which is located approximately 0.66 mile southwest of the facility. There are four other public supply wells located within about a mile of the facility. All are located to the south or southwest, in an apparently upgradient or sidegradient position with respect to the facility [Ref. 21, pp. 23, 31, 69, 70, 381].

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 1

Source Type of the source: Other (One-time, Point-source Release)

Name and description of the source: Release from Reactor AR54, January 5, 2002

Source 1 is the release of technical-grade CFP from Reactor AR54 on January 5, 2002 [Ref. 14, pp. 2, 3]. Diaz reported that Reactor AR54 was being used to warm technical-grade CFP, pending purification of the material scheduled for January 7, 2002 [Ref. 14, p. 2]. CFP is a specialty organic chemical that Diaz was producing for a pharmaceutical company [Ref. 15, p. 1; 16, p. 4; 17, p. 1]. Based on analysis conducted on December 19, 2001, the material consisted of approximately 61.2 percent CFP, various percentages of related compounds, and 1.6 percent toluene [Ref. 14, p. 7]. The reactor contained about 1,080 gallons of the CFP mixture and water. The process supervisor left instructions to keep the material at 65°C to 70°C over the weekend in preparation for the purification process. On January 5, 2002, the day shift assistant heated the material to about 60°C, turned off the heat, and closed the scrubber vent. When steam was reapplied during the afternoon shift, the scrubber vent was not reopened. At approximately 10:15 p.m., the temperature of the mixture had reached about 120°C and the pressure inside Reactor AR54 had reached 30 pounds per square inch (psi). The rupture disk, a type of safety valve to prevent the vessel from exploding, ruptured and allowed approximately 75 gallons of mixture to release from a non-permitted emission point [Ref. 14, pp. 2, 3].

When the release occurred, the wind was 5 to 8 miles per hour (mph) from the southwest. Droplets of the CFP mixture splattered onto downwind residential properties along Jackson Street, Thomas Street, and South Main Street. The material deposited on vehicles, houses, yards, and vegetation within the splash zone [Ref. 14, pp. 3, 4, 5, 34, 35; 16, pp. 4, 5, 9, 24, 59 through 65]. Analytical results for wipe and vegetation samples collected by NYSDOH on January 14 and 15, 2002 indicated the presence of CFP and related compounds on residential properties. There was visual evidence of contamination in the form of staining, residues, or discoloration at many of the wipe sample locations and on the vegetation samples [Ref. 16, pp. 59 through 65, 70]. On the night of the occurrence, a neighbor called 911 to report a strange odor in the house and the onset of burning eyes [Ref. 13, p. 8; 14, p. 3; 18, p. 4], and Diaz received several reports of odors in and east of the Village of Holley [Ref. 14, p. 34]. CFP has a characteristic phenolic odor [Ref. 14, p. 10]. A Diaz employee noticed the odor as he entered the Village on the evening of January 6, 2002, and a NYSDEC inspector observed the phenolic odor east of the plant on January 8 [Ref. 19, p. 1]. Odors from the release were also reported 12 miles away in the Village of Hilton [Ref. 13, p. 8; 16, p. 4].

Location of the source, with reference to a map of the site:

Reactor AR54 is located in Area A, a process area located approximately in the middle of the Diaz manufacturing plant [Ref. 10, p. 98; 14, p. 2]. The location of Area A is shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 1 contains gaseous hazardous substances only (vapor pressures range from 0.4 to 28.4 Torr [Ref. 14, pp. 10, 32; 30, pp. 1, 11, 37, 41, 44, 50, 56, 60, 61, 62]), so Source 1 is evaluated for gas containment using HRS Table 6-3 and is not evaluated for particulate containment.

Release via air pathway (continued):

The release on January 5, 2002 shows evidence of hazardous substance migration from the source via the air pathway [Ref. 14, pp. 2, 3]. This situation is not specifically listed in Table 6-3 and matches the category “All situations except those specifically listed below.” Based on the containment description, Source 1 is assigned a gas containment factor value of 10 in the air migration pathway [Ref. 1, p. 51652].

2.4.1 Hazardous Substances

Note: The hazardous substances listed below were detected in source material analyzed by Diaz before the release and by NYSDOH after the release, as noted [Ref. 14, pp. 2, 7; 16, p. 6]. There are no background samples.

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
2-Chloro-6-fluorophenol (CFP)	R54 Composition from scan dated 12/19/01 (Diaz): 61.2%	14, p. 7
	Analysis of toluene wash solution of residue remaining in storage vessel after material release (NYSDOH): 55%	16, p. 44
4-Chloro-2-fluorophenol	R54 Composition from scan dated 12/19/01 (Diaz): 1.7%	14, p. 7
Chlorotoluenes	R54 Composition from scan dated 12/19/01 (Diaz): 3.6%	14, p. 7
2,4-Dichloro-6-fluorophenol	R54 Composition from scan dated 12/19/01 (Diaz): 13.6%	14, p. 7
	Analysis of toluene wash solution of residue remaining in storage vessel after material release (NYSDOH): 21%	16, p. 44
Toluene	R54 Composition from scan dated 12/19/01 (Diaz): 1.6%	14, p. 7

In addition to the substances listed above, there was tentative identification of the following compounds in both samples [Ref. 14, p. 7; 16, p. 44]:

Chlorofluorophenoxymethylbenzene
Dichlorofluorophenoxymethylbenzene
(Chlorofluorophenoxy)2-H
Dichlorofluorophenoxychlorofluorophenol
(Chlorofluorophenoxy)3-H
Dichlorofluorophenoxy(chlorofluorophenoxy)2-H

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The hazardous wastestream quantity (W) for the release is 75 gallons of material that blew out through a non-permitted emission point [Ref. 14, p. 3], which is converted to 750 pounds in accordance with HRS Table 2-5 [Ref. 1, p. 51591]. The hazardous wastestream quantity (W) is divided by 5,000 to obtain the assigned hazardous wastestream quantity value, as stated in HRS Table 2-5 [Ref. 1, p. 51591].

Hazardous Wastestream Quantity (W) Value (750/5,000): 0.15

2.4.2.1.3 Volume

Since the hazardous wastestream quantity for Source 1 is adequately determined, the volume measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Volume (V) Assigned Value: 0

2.4.2.1.4 Area

Since the hazardous wastestream quantity for Source 1 is adequately determined, the area measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 1 is 0.15 for Tier B - Hazardous Wastestream Quantity [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 0.15

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 2

Source Type of the source: Drums

Name and description of the source: Abandoned Drummed Xylene, Area 5

Source 2 consists of drummed Xylene abandoned by Diaz in Area 5 of the manufacturing plant [Ref. 11, pp. 1, 5]. When Diaz filed for bankruptcy and abandoned the facility in June 2003, the company left behind, as waste, a multitude of chemicals in drums, including newly purchased Xylene [Ref. 7, p. 1; 11, pp. 1 through 11]. The abandoned drums of Xylene are stored outside in Area 5 of the facility [Ref. 11, pp. 1 through 6, 9]. The property is currently controlled by EPA's Response and Prevention Branch pending removal of the abandoned chemicals [Ref. 11, p. 1].

Location of the source, with reference to a map of the site:

Area 5 is located at the southeastern corner of the Diaz manufacturing plant [Ref. 10, p. 98]. The location of Area 5 is shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 2 contains gaseous hazardous substances only (vapor pressures of xylenes range from 6.61 to 8.9 Torr [Ref. 30, pp. 38, 39, 40]), so Source 2 is evaluated for gas containment using HRS Table 6-3 and is not evaluated for particulate containment.

The drums of Xylene abandoned by Diaz remain sealed and intact and, being outside in Area 5, they are not totally protected from weather by a regularly inspected and maintained cover [Ref. 11, pp. 1, 9]. This situation is listed in HRS Table 6-3 as "Source consists solely of intact, sealed containers: Other." Based on the containment description, Source 2 is assigned a gas containment factor value of 3 in the air migration pathway [Ref. 1, p. 51652].

2.4.1 **Hazardous Substances**

Note: When Diaz abandoned the facility in June 2003, the company reported that drums of newly purchased Xylene were present in Area 5 [Ref. 11, pp. 5, 6]. EPA, which currently controls access to the property, has indicated that the drums remain on the property in an outdoor area [Ref. 11, pp. 1, 5, 9].

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
Xylene	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The inventory provided by Diaz indicates the quantity of drummed chemicals abandoned in Area 5, including 8,400 kilograms of newly purchased Xylene [Ref. 11, pp. 5, 6]. Therefore, the Xylene is included in the hazardous constituent quantity calculation. The hazardous constituent quantity (C) value is equal to the mass of Xylene, in pounds [Ref. 1, p. 51590, 51591]. The standard conversion factor is 2.2 pounds per kilogram:

$$C = 8,400 \text{ kg} \times 2.2 \text{ lb/kg} = 18,480 \text{ lb}$$

Hazardous Constituent Quantity (C) Value: 18,480

2.4.2.1.2 Hazardous Wastestream Quantity

Since the hazardous constituent quantity for Source 2 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), hazardous wastestream quantity is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Hazardous Wastestream Quantity (W) Value: 0

2.4.2.1.3 Volume

Since the hazardous constituent quantity for Source 2 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), the volume measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Volume (V) Assigned Value: 0

2.4.2.1.4 Area

Since the hazardous constituent quantity for Source 2 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), the area measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 2 is 18,480 for Tier A - Hazardous Constituent Quantity [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 18,480

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 3

Source Type of the source: Drums

Name and description of the source: Abandoned Drummed Chemicals, Area 5

Source 3 consists of drummed chemicals of undocumented purity abandoned outside by Diaz in Area 5 of the manufacturing plant [Ref. 11, pp. 1, 5]. Drummed chemicals abandoned by Diaz in other areas of the plant are not included in this source because the drums are sealed and intact and they are located inside buildings [Ref. 11, pp. 1, 9], which gives them a containment factor of 0 in the air pathway [Ref. 1, pp. 51652, 51653].

When Diaz filed for bankruptcy and abandoned the facility in June 2003, the company left behind as waste a multitude of chemicals in drums and tanks [Ref. 7, p. 1; 11, pp. 1 through 11]. Diaz provided a Drummed Chemical Inventory to EPA when they abandoned the facility. The drummed materials of unknown purity in Area 5, which are stored outside, include technical-grade bromotoluene, bromoxylenes, and hydrobromic acid; and recycle-stream xylene/toluene [Ref. 11, pp. 1 through 6]. The property is currently controlled by EPA's Response and Prevention Branch pending removal of the abandoned chemicals, however, the removal is expected to take a long time because there are few disposal contractors that can accommodate the specialty chemicals abandoned by Diaz [Ref. 11, p. 1].

Location of the source, with reference to a map of the site:

Area 5 is located at the southeastern corner of the Diaz manufacturing plant [Ref. 10, p. 98]. The location of Area 5 is shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 3 contains gaseous hazardous substances only (vapor pressures range from 1.00 Torr to 1.37×10^4 Torr [Ref. 30, pp. 37 through 40, 64, 67, 73, 79, 85, 89, 94, 100, 101]), so Source 3 is evaluated for gas containment using HRS Table 6-3 and is not evaluated for particulate containment.

The drums abandoned by Diaz remain sealed and intact and, being outside in Area 5, they are not totally protected from weather by a regularly inspected and maintained cover [Ref. 11, pp. 1, 9]. This situation is listed in HRS Table 6-3 as "Source consists solely of intact, sealed containers: Other." Based on the containment description, Source 3 is assigned a gas containment factor value of 3 in the air migration pathway [Ref. 1, p. 51652].

2.4.1 Hazardous Substances

Note: When Diaz abandoned the facility in June 2003, the company reported that the following drummed chemicals were present in Area 5 [Ref. 11, p. 5]. EPA, which currently controls access to the property, has indicated that the drums remain on the property [Ref. 11, p. 1].

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
Bromotoluene	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5
Bromoxylenes	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5
Hydrobromic Acid	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5
m-Maleimidobenzoyl n-Hydroxysuccinimide Ester (MBS)	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5; 30, p. 99
Toluene	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5
Xylene	Drummed chemical inventory, Area 5 (Diaz, June 2003)	11, p. 5

In addition to the substances listed above, the Area 5 drum contents include “MBFB (Z).” Diaz reported that “Z” denotes that the chemical is no longer valuable to the process. There is no additional information regarding the chemical MBFB [Ref. 11, pp. 5, 6; 30, p. 101].

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The inventory provided by Diaz indicates the quantity of drummed chemicals abandoned in Area 5, however, the chemicals other than the newly purchased Xylene (Source 2) are less than pure [Ref. 11, pp. 1, 5, 6]. The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The information available is not sufficient to evaluate Tier B source hazardous waste quantity; therefore, hazardous wastestream quantity is not scored (NS).

Hazardous Wastestream Quantity (W) Value: NS

2.4.2.1.3 Volume

The total mass of drummed chemicals in Area 5 is 391,000 kilograms [Ref. 11, p. 5]. Using the standard conversion factor of 2.2 pounds per kilogram, the mass is 860,200 pounds, as calculated below:

$$\text{Mass} = 391,000 \text{ kg} \times 2.2 \text{ lb/kg} = 860,200 \text{ lb}$$

The volume is determined by converting the mass of material to volume in accordance with HRS Table 2-5, as shown below. The source type is "Drums;" therefore, the volume of the source in gallons is divided by 500 to obtain the assigned volume (V) value for Hazardous Waste Quantity (HWQ), as stated in Table 2-5 [Ref. 1, p. 51591].

$$V = 860,200 \text{ lb} \times 0.1 \text{ gal/lb} = 86,020 \text{ gal}$$

Volume (V) Assigned Value (86,020/500): 172

2.4.2.1.4 Area

Since the volume of Source 3 can be determined, the area measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 3 is 172 for Tier B - Hazardous Wastestream Quantity [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 172

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 4

Source Type of the source: Tanks

Name and description of the source: Abandoned Bulk Chemicals, Area 5 Tank Farm

Source 4 consists of bulk chemicals abandoned by Diaz at the Area 5 Tank Farm [Ref. 11, pp. 1, 5]. Bulk chemicals abandoned by Diaz in other areas of the plant are not included in this source because they remain sealed, intact, and inside buildings [Ref. 11, pp. 1, 9], which gives them a containment factor of 0 in the air pathway [Ref. 1, pp. 51652, 51653].

When Diaz filed for bankruptcy and abandoned the facility in June 2003, the company left behind, as waste, a multitude of chemicals in drums and tanks [Ref. 7, p. 1; 11, pp. 1 through 11]. Diaz provided a Bulk Chemical Inventory for the tank contents to EPA when they abandoned the facility. The tanks at the Area 5 Tank Farm include process wastewater (sodium bromide aqueous waste), m-bromofluorobenzene crude, sales-grade hydrobromic acid, toluene, methanol/water, fluorobenzene, mixed bromotoluene, process wastewater (m-bromoanisole aqueous waste), and sodium hydroxide [Ref. 11, pp. 6, 9, 11]. The property is currently controlled by EPA's Response and Prevention Branch pending removal of the abandoned chemicals, however, the removal is expected to take a long time because there are few disposal contractors that can accommodate the specialty chemicals abandoned by Diaz [Ref. 11, p. 1].

Location of the source, with reference to a map of the site:

The Area 5 Tank Farm is located near the eastern edge of the Diaz manufacturing plant [Ref. 10, p. 98]. The location of the Area 5 Tank Farm is shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 4 contains gaseous and particulate hazardous substances (vapor pressures range from negligible to 1.37×10^4 Torr [Ref. 30, pp. 29, 37, 64, 67, 73, 79, 89, 94, 104, 109, 115, 122, 130]), so Source 4 is evaluated for gas containment using HRS Table 6-3 and particulate containment using HRS Table 6-9.

The tanks abandoned by Diaz remain sealed and intact, and they contain chemicals in solid and liquid form. The tanks are located outside in Area 5, so they are not totally protected from weather by a regularly inspected and maintained cover [Ref. 11, pp. 1, 9, 11]. This situation is listed in HRS Table 6-3 as "Source consists solely of intact, sealed containers: Other" and in HRS Table 6-9 as "Source consists solely of containers: All containers intact and sealed." Based on the containment descriptions, Source 4 is assigned a gas containment factor value of 3 and a particulate containment factor value of 3 in the air migration pathway [Ref. 1, pp. 51652, 51653].

2.4.1 Hazardous Substances

Note: When Diaz abandoned the facility in June 2003, the company reported that bulk chemicals were present in tanks in Area 5 [Ref. 11, p. 6]. EPA, which currently controls access to the property, has indicated that the following bulk chemicals remain in tanks on the property [Ref. 11, pp. 9, 11].

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
m-Bromoanisole aqueous waste	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
m-Bromofluoro-benzene crude	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Bromotoluene, mixed	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Fluorobenzene	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Hydrobromic Acid (sales-grade, 95-99%)	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Methanol/H ₂ O	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Sodium bromide aqueous waste	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Sodium hydroxide	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11
Toluene	Bulk chemical inventory (Diaz, June 2003; EPA, Oct. 2003)	11, pp. 6, 9, 11

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The inventory provided by Diaz and corrected by EPA indicates the quantity of chemicals abandoned in the Area 5 tanks, however, the purity of the chemicals on the list is not specified [Ref. 11, pp. 6, 11]. The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The information available is not sufficient to evaluate Tier B source hazardous waste quantity; therefore, hazardous wastestream quantity is not scored (NS).

Hazardous Wastestream Quantity (W) Value: NS

2.4.2.1.3 Volume

The total volume of bulk chemicals in the Area 5 Tank Farm is 107,233 gallons [Ref. 11, p. 11], which is converted to 536.2 cubic yards in accordance with HRS Table 2-5 (see calculation below). The source type is "Tanks and containers other than drums;" therefore, the volume of the source in cubic yards is divided by 2.5 to obtain the assigned volume (V) value for Hazardous Waste Quantity (HWQ), as stated in Table 2-5 [Ref. 1, p. 51591].

$$V = 107,233 \text{ gal} \div 200 \text{ gal/yd}^3 = 536.2 \text{ yd}^3$$

Volume (V) Assigned Value (536.2/2.5): 214.5

2.4.2.1.4 Area

Since the volume of Source 4 can be determined, the area measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 4 is 214.5 for Tier B - Hazardous Wastestream Quantity [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 214.5

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 5

Source Type of the source: Surface Impoundment

Name and description of the source: Wastewater Collection Pit

Source 5 is the wastewater collection pit (a.k.a. wastewater treatment sump), which consists of two adjacent open-top chambers. The wastewater collection pit was part of the wastewater system at the Diaz facility [Ref. 11, p. 1; 22, pp. 1, 4, 5; 23, pp. 6, 7, 8; 24, pp. 8, 18]. Runoff and some floor water at the Diaz facility flowed to the collection pit from a system of drains, trenches, sewers, and open/grated ditches located throughout the facility [Ref. 22, pp. 1, 4, 6, 7; 23, pp. 4, 7]. In addition, Diaz discharged wastewater and periodically pumped ground water into the collection pit [Ref. 22, p. 1; 24, p. 8]. The two-sectioned collection pit consisted of a sedimentation chamber for the collection of heavy insoluble substances and a skimmer chamber for the collection of light insoluble substances. After separation of the insoluble materials, the remaining wastewater was pumped from the bottom of the skimmer chamber to on-site holding tanks and ultimately discharged to the Village of Holley sanitary sewer system [Ref. 22, p. 5; 23, pp. 6, 7, 8]. Both chambers of the wastewater collection pit (the sedimentation chamber and the skimmer chamber) are being scored together as Source 5. The remainder of the wastewater system (drains, trenches, sewers, and open/grated ditches located throughout the facility) is not included in the source evaluation.

On June 17, 2003, EPA Region 2 SAT collected a sludge sample from the first chamber of the wastewater collection pit and a wastewater sample from the second chamber [Ref. 24, p. 18; 26, pp. 8, 35]. The analytical results indicated that the sludge sample contained SVOCs (including CFP) and pesticides, while the wastewater sample contained CFP, pesticides, and 1,2-dichloroethane [Ref. 26, pp. 43, 44; 27, pp. 186, 187, 223; 28, pp. 114, 166, 188].

The capacity of the wastewater collection pit has been reported to be approximately 17,000 gallons [Ref. 25, p. 5]. The EPA Region 2 Site Assessment Team (SAT) measured the dimensions of the source to be 14 feet 7 inches long, 10 feet wide, and 13 feet 8 inches deep [Ref. 24, p. 18]. EPA observed in September 2002 that the water in the collection pit was dark brown [Ref. 25, p. 5]. During a site reconnaissance on May 29, 2003, Region 2 SAT observed corroded concrete in one corner of the wastewater collection pit [Ref. 24, p. 8]. The wastewater collection pit remains filled with liquid and sludge [Ref. 11, p. 1].

Location of the source, with reference to a map of the site:

The wastewater collection pit (a.k.a. wastewater treatment sump) is located at the northeast side of the Diaz property [Ref. 10, p. 98; 22, pp. 4, 7]. The locations of the source and associated samples are shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 5 contains gaseous and particulate hazardous substances (vapor pressures range from 1×10^{-10} Torr to 95.3 Torr [Ref. 14, p. 10; 30, pp. 2, 4, 5, 7 through 10, 12, 14, 15, 17, 19, 21, 22, 24, 25, 26, 28, 30, 33, 34, 35]), so Source 5 is evaluated for gas containment using HRS Table 6-3 and particulate containment using HRS Table 6-9.

Release via air pathway (continued):

The wastewater collection pit is an open-top surface impoundment that contains liquid and sludge [Ref. 11, p. 1; 22, pp. 1, 4, 5; 23, pp. 6, 7, 8; 24, pp. 8, 18]. This situation is not specifically listed in Table 6-3 or Table 6-9 and matches the category “All situations except those specifically listed below” for both tables. Based on the containment descriptions, Source 5 is assigned a gas containment factor value of 10 and a particulate containment factor value of 10 in the air migration pathway [Ref. 1, pp. 51652, 51653].

2.4.1 Hazardous Substances

Note: EPA Region 2 SAT collected sludge and wastewater samples from the Wastewater Collection Pit in June 2003. Since they were samples of source material, there were no background samples collected for comparison. The analytical results indicated the presence of numerous organic compounds at concentrations above the Sample Quantitation Limits (SQL) [Ref. 24, p. 18; 26, pp. 8, 43; 27, pp. 129, 186, 187, 223; 28, pp. 114, 166, 188].

Notes on data validation qualifiers associated with EPA samples listed below:

“J” indicates an estimated value, but presence of the hazardous substance is documented at the source.

“D” indicates that the reported value is from a dilution.

[Ref. 27, pp. 3, 12, 86, 91, 129, 187, 223; 28, pp. 4, 9, 85, 166, 188]

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
Acetophenone	Sludge sample DCI-SLD-01: 890 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 186
Anthracene	Sludge sample DCI-SLD-01: 740 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
Benzo(a)anthracene	Sludge sample DCI-SLD-01: 4,900D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Benzo(a)pyrene	Sludge sample DCI-SLD-01: 5,300D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Benzo(b)fluoranthene	Sludge sample DCI-SLD-01: 5,800D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Benzo(g,h,i)perylene	Sludge sample DCI-SLD-01: 2,400 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
Benzo(j,k)fluorene [Fluoranthene]	Sludge sample DCI-SLD-01: 14,000D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Benzo(k)fluoranthene	Sludge sample DCI-SLD-01: 5,400D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Bis(2-ethylhexyl)phthalate	Sludge sample DCI-SLD-01: 3,200D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Carbazole	Sludge sample DCI-SLD-01: 970 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
gamma-Chlordane	Sludge sample DCI-SLD-01: 34,000D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 223
2-Chloro-6-fluorophenol (CFP)	Sludge sample DCI-SLD-01: 1,100J ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
	Wastewater sample DCI-WW-01: 3J ug/L (EPA, June 2003)	26, pp. 8, 43; 28, p. 166

<u>Hazardous Substance</u>	<u>Evidence</u>	<u>Reference(s)</u>
Chrysene	Sludge sample DCI-SLD-01: 5,900D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Dibenz(a,h)anthracene	Sludge sample DCI-SLD-01: 880 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
1,2-Dichloroethane (EDC)	Wastewater sample DCI-WW-01: 10 ug/L (EPA, June 2003)	26, pp. 8, 43; 28, p. 114
Endrin	Sludge sample DCI-SLD-01: 18,000JD ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 223
	Wastewater sample DCI-WW-01: 0.31J ug/L (EPA, June 2003)	26, pp. 8, 43; 28, p. 188
Heptachlor	Wastewater sample DCI-WW-01: 11JD ug/L (EPA, June 2003)	26, pp. 8, 43; 28, pp. 9, 188
Heptachlor epoxide	Wastewater sample DCI-WW-01: 5.4D ug/L (EPA, June 2003)	26, pp. 8, 43; 28, pp. 9, 188
Indeno(1,2,3-cd)pyrene	Sludge sample DCI-SLD-01: 3,400J ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 187
Methyl ethyl ketone [2-Butanone]	Sludge sample DCI-SLD-01: 16J ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 129
Phenanthrene	Sludge sample DCI-SLD-01: 7,500D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187
Phenol	Sludge sample DCI-SLD-01: 2,400 ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, p. 186
Pyrene	Sludge sample DCI-SLD-01: 11,000D ug/kg (EPA, June 2003)	26, pp. 8, 43; 27, pp. 12, 187

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The information available is not sufficient to evaluate Tier B source hazardous waste quantity; therefore, hazardous wastestream quantity is not scored (NS).

Hazardous Wastestream Quantity (W) Value: NS

2.4.2.1.3 Volume

In this section, the surface impoundment dimensions are used to provide a more conservative (i.e., lower) estimate of volume than the 17,000-gallon capacity reported by EPA in September 2002 [Ref. 25, p. 5]. Using the conversion factor of 200 gallons per cubic yard from HRS Table 2-5, 17,000 gallons equates to 85 cubic yards [Ref. 1, p. 51591].

The dimensions of the wastewater collection pit were measured as 14 feet 7 inches by 10 feet by 13 feet 8 inches depth [Ref. 24, p. 18]. Conservatively assuming 3 feet 8 inches of freeboard and rounding down the tank length to 14 feet, the tank volume can be conservatively estimated at 1,400 cubic feet, which equals 52 cubic yards as shown below:

$$V = 14 \text{ ft} \times 10 \text{ ft} \times 10 \text{ ft} = 1,400 \text{ ft}^3 \div 27 \text{ ft}^3/\text{yd}^3 = 52 \text{ yd}^3$$

The more conservative measure of 52 cubic yards is used to evaluate the volume (V) value. The source type is “Surface impoundment,” therefore, the volume of the source in cubic yards is divided by 2.5 to obtain the assigned volume (V) value for Hazardous Waste Quantity (HWQ), as stated in Table 2-5 [Ref. 1, p. 51591].

Volume (V) Assigned Value (52/2.5): 20.8

2.4.2.1.4 Area

Since the volume of this waste source can be determined, the area measure is not evaluated and the area measure is assigned a value of 0 [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 5 is 20.8 for Tier C - Volume [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 20.8

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 6
Source Type of the source: Contaminated Soil
Name and description of the source: Contaminated Soil

Source 6 is Contaminated Soil left behind by facility operations and occurrences. From 1994 to 1999, Diaz conducted a six-phase RI under the guidance of NYSDEC. The RI results revealed that soils and ground water on the property and nearby are contaminated with VOCs and SVOCs. Contaminants detected in on-site soil samples include 1,2-dichloroethane (a.k.a. ethylene dichloride, or EDC); 1,2-dibromoethane (EDB); and a number of brominated chemical intermediates [Ref. 10, pp. 8, 11 through 23, 27, 28]. Several compounds that were detected at significant concentrations in on-site soils, including EDC and EDB, were also included in the Toxics Release Inventory (TRI) as having been released to the environment from the Diaz plant [Ref. 3, pp. 13 through 18]. Another compound detected at significant concentrations, para-chlorobenzotrifluoride (PCBTF), had been spilled on the property in 1990 [Ref. 13, p. 15]. According to Diaz, a prevailing downward gradient has carried contaminants through the overburden at the facility into the shallow bedrock aquifer [Ref. 10, pp. 31, 38, 104, 105].

EPA collected on-site soil samples and off-site background soil samples in June 2003 [Ref. 26, pp. 8, 9]. The results indicate that SVOCs are present at concentrations significantly above background in on-site soil sample DCI-S-238, which was collected from the southeastern portion of the site [Ref. 24, p. 14; 26, pp. 8, 35, 41; 27, pp. 99 through 104, 156 through 160, 166, 325 through 342, 385 through 402].

Location of the source, with reference to a map of the site:

Exposed contaminated soil is located at the southeastern corner of the property. The locations of soil samples collected by EPA in June 2003 are shown in Figure 2.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 6 contains gaseous and particulate hazardous substances (vapor pressures range from 1.00×10^{-10} Torr to 95.3 Torr [Ref. 30, pp. 4, 5, 7 through 10, 17, 21, 24, 28, 30, 33, 35]), so Source 6 is evaluated for gas containment using HRS Table 6-3 and particulate containment using HRS Table 6-9.

Contaminants were detected at significant concentrations in a surface soil sample (depth: 0-3 inches) collected south of Area 5 near the southeast corner of the property, providing evidence that the uncontaminated soil cover is less than 1 foot. The sample location is not described as heavily vegetated [Ref. 26, pp. 8, 35, 41; 27, pp. 166]. This situation is listed in HRS Tables 6-3 and 6-9 as "Uncontaminated soil cover < 1 foot: Other." Based on the containment descriptions, Source 6 is assigned a gas containment factor value of 10 and a particulate containment factor value of 10 in the air migration pathway [Ref. 1, pp. 51652, 51653].

2.4.1 Hazardous Substances

Diaz collected surface soil samples from the property during the first phase of the RI in 1994, under the guidance of NYSDEC. Diaz did not designate any specific soil samples as background, however, the analytical results for sample SS-1 indicate that there has been little or no impact from site-related contaminants (i.e., background concentrations) at that location. That sample is comparable to the contaminated samples because the dates of collection, sampling methods, depth range, and analytical methods are similar [Ref. 10, p. 85 through 89]. Sample SS-1 was collected from an area outside the Diaz fence line, while the contaminated samples (SS-2, SS-3, SS-4, and SV-111/S1) were all collected within the fence line [Ref. 21, p. 63].

EPA collected on-site soil samples and off-site background soil samples in June 2003 [Ref. 26, pp. 8, 9]. Analytical results for the on-site sampling activities indicate the presence of VOCs and SVOCs at significant concentrations, as shown in the tables below. The background soil samples are comparable to the contaminated samples because the dates of collection, sampling method, depth range, and analytical methods are similar [Ref. 26, pp. 8, 9; 27, pp. 99 through 104, 156 through 160, 325 through 342, 385 through 402].

The Diaz and EPA soil data for contaminated samples are compared to the maximum background concentration of all background samples mentioned above. That is the most conservative method of comparing the two sets of data (i.e., each contaminated sample compared against all background samples).

The data listed in the table of Contaminated Samples below for evaluation of Source 6 (Contaminated Soil) include detections of VOCs and SVOCs that meet the following criteria:

- C greater than or equal to three times the maximum background concentration (if compound detected at or above Sample Quantitation Limit [SQL] in background samples); or
- C greater than or equal to the maximum background SQL (if compound not detected above SQLs in background samples); and
- C greater than or equal to the sample SQL; and
- C laboratory data sheets were available to EPA at the time of the HRS evaluation.

The following qualifiers and abbreviations are used in the tables below:

ug/kg Micrograms per kilogram

Bold Background Samples: bold indicates maximum background concentration or maximum background SQL, whichever is greater.
Contaminated Samples: bold indicates maximum concentration of compound.

ND Compound was not detected at or above the SQL.

J Estimated value, concentration at or below the detection limit [Ref. 10, p. 89]; while “J” data is used, the presence of the hazardous substance is documented at the source.

Background Samples

Hazardous Substance	Sample ID	Depth (ft)	Sample Date	Conc. (ug/kg)	SQL (ug/kg)	Reference
Anthracene	SS-1	0.3 - 0.5	7/13/94	ND	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	ND	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	15 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	ND	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Benzo(a)anthracene	SS-1	0.3 - 0.5	7/13/94	110 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	27 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	71 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	17 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	26 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Benzo(a)pyrene	SS-1	0.3 - 0.5	7/13/94	110 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	28 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	85 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	16 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	26 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Benzo(b)fluoranthene	SS-1	0.3 - 0.5	7/13/94	120 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	33 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	75 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	21 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	32 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Benzo(g,h,i)perylene	SS-1	0.3 - 0.5	7/13/94	71 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	ND	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	59 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	ND	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401

Hazardous Substance	Sample ID	Depth (ft)	Sample Date	Conc. (ug/kg)	SQL (ug/kg)	Reference
Benzo(j,k)fluorene [Fluoranthene]	SS-1	0.3 - 0.5	7/13/94	190 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	11 J	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	63 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	130 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	48 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	20 J	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	71 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	23 J	400	26, p. 51; 27, p. 401
Benzo(k)fluoranthene	SS-1	0.3 - 0.5	7/13/94	110 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	31 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	85 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	ND	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	32 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Chrysene	SS-1	0.3 - 0.5	7/13/94	130 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	39 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	89 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	26 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	36 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	12 J	400	26, p. 51; 27, p. 401
1,2-Dichloroethane (EDC)	SS-1	0.3 - 0.5	7/13/94	4 J	11	21, pp. 189, 203
	DCI-S-01	0 - 0.25	6/16/03	ND	11	26, p. 40; 27, p. 325
	DCI-S-02	0 - 0.25	6/16/03	ND	11	26, p. 40; 27, p. 328
	DCI-S-03	0 - 0.25	6/18/03	ND	12	26, p. 46; 27, p. 99
	DCI-S-04	0 - 0.25	6/18/03	ND	10	26, p. 46; 27, p. 102
	DCI-S-05	0 - 0.25	6/19/03	ND	16	26, p. 51; 27, p. 331
	DCI-S-06	0 - 0.25	6/19/03	ND	15	26, p. 51; 27, p. 334
	DCI-S-07	0 - 0.25	6/19/03	ND	15	26, p. 51; 27, p. 337
	DCI-S-08	0 - 0.25	6/19/03	ND	10	26, p. 51; 27, p. 340
Indeno(1,2,3-cd)pyrene	SS-1	0.3 - 0.5	7/13/94	71 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	32 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	71 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	15 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	25 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	10 J	400	26, p. 51; 27, p. 401

Hazardous Substance	Sample ID	Depth (ft)	Sample Date	Conc. (ug/kg)	SQL (ug/kg)	Reference
Methyl ethyl ketone [2-Butanone]	SS-1	0.3 - 0.5	7/13/94	ND	11	21, pp. 189, 203
	DCI-S-01	0 - 0.25	6/16/03	ND	11	26, p. 40; 27, p. 325
	DCI-S-02	0 - 0.25	6/16/03	ND	11	26, p. 40; 27, p. 328
	DCI-S-03	0 - 0.25	6/18/03	ND	12	26, p. 46; 27, p. 99
	DCI-S-04	0 - 0.25	6/18/03	47	10	26, p. 46; 27, p. 102
	DCI-S-05	0 - 0.25	6/19/03	ND	16	26, p. 51; 27, p. 331
	DCI-S-06	0 - 0.25	6/19/03	ND	15	26, p. 51; 27, p. 334
	DCI-S-07	0 - 0.25	6/19/03	ND	15	26, p. 51; 27, p. 337
	DCI-S-08	0 - 0.25	6/19/03	ND	10	26, p. 51; 27, p. 340
Phenanthrene	SS-1	0.3 - 0.5	7/13/94	97 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	25 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	35 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	29 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	36 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	ND	400	26, p. 51; 27, p. 401
Pyrene	SS-1	0.3 - 0.5	7/13/94	170 J	370	21, pp. 189, 233
	DCI-S-01	0 - 0.25	6/16/03	ND	420	26, p. 40; 27, p. 386
	DCI-S-02	0 - 0.25	6/16/03	ND	400	26, p. 40; 27, p. 389
	DCI-S-03	0 - 0.25	6/18/03	56 J	390	26, p. 46; 27, p. 157
	DCI-S-04	0 - 0.25	6/18/03	100 J	390	26, p. 46; 27, p. 160
	DCI-S-05	0 - 0.25	6/19/03	40 J	490	26, p. 51; 27, p. 392
	DCI-S-06	0 - 0.25	6/19/03	ND	460	26, p. 51; 27, p. 395
	DCI-S-07	0 - 0.25	6/19/03	60 J	460	26, p. 51; 27, p. 398
	DCI-S-08	0 - 0.25	6/19/03	19 J	400	26, p. 51; 27, p. 401

Contaminated Samples

Hazardous Substance	Sample ID	Depth (ft)	Sample Date	Conc. (ug/kg)	SQL (ug/kg)	Reference
Anthracene	SS-3	0.3 - 0.5	7/13/94	770	380	21, pp. 189, 239
Benzo(a)anthracene	SS-2	0.3 - 0.5	7/13/94	840	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	1,700	380	21, pp. 189, 239
	DCI-S-238	0 - 0.25	6/17/03	760	380	26, p. 41; 27, p. 166
Benzo(a)pyrene	SS-2	0.3 - 0.5	7/13/94	650	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	1,300	380	21, pp. 189, 239
	DCI-S-238	0 - 0.25	6/17/03	810	380	26, p. 41; 27, p. 166
Benzo(b)fluoranthene	SS-2	0.3 - 0.5	7/13/94	630	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	1,600	380	21, pp. 189, 239
	SS-4	0.3 - 0.5	7/13/94	520	370	21, pp. 189, 245
	DCI-S-238	0 - 0.25	6/17/03	750	380	26, p. 41; 27, p. 166
Benzo(g,h,i)perylene	SS-3	0.3 - 0.5	7/13/94	950	380	21, pp. 189, 239
Benzo(j,k)fluorene [Fluoranthene]	SS-2	0.3 - 0.5	7/13/94	2,100	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	3,900	380	21, pp. 189, 239
	SS-4	0.3 - 0.5	7/13/94	740	370	21, pp. 189, 245
	DCI-S-238	0 - 0.25	6/17/03	1,700	380	26, p. 41; 27, p. 166
Benzo(k)fluoranthene	SS-2	0.3 - 0.5	7/13/94	570	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	980	380	21, pp. 189, 239
	DCI-S-238	0 - 0.25	6/17/03	670	380	26, p. 41; 27, p. 166
Chrysene	SS-2	0.3 - 0.5	7/13/94	860	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	1,700	380	21, pp. 189, 239
	SS-4	0.3 - 0.5	7/13/94	500	370	21, pp. 189, 245
	DCI-S-238	0 - 0.25	6/17/03	870	380	26, p. 41; 27, p. 166
1,2-Dichloroethane (EDC)	SV-111/S1	2 - 4	7/13/94	27,000	14,000	21, pp. 189, 216
	SV-111/S1(RE)	2 - 4	7/13/94	52,000	14,000	21, pp. 189, 218
Indeno(1,2,3-cd)pyrene	SS-3	0.3 - 0.5	7/13/94	900	380	21, pp. 189, 239
Methyl ethyl ketone [2-Butanone]	SS-4	0.3 - 0.5	7/13/94	1,700	1,400	21, pp. 189, 211
Phenanthrene	SS-2	0.3 - 0.5	7/13/94	1,900	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	3,600	380	21, pp. 189, 239
	DCI-S-238	0 - 0.25	6/17/03	970	380	26, p. 41; 27, p. 166
Pyrene	SS-2	0.3 - 0.5	7/13/94	1,700	370	21, pp. 189, 236
	SS-3	0.3 - 0.5	7/13/94	3,500	380	21, pp. 189, 239
	SS-4	0.3 - 0.5	7/13/94	630	370	21, pp. 189, 245
	DCI-S-238	0 - 0.25	6/17/03	1,500	380	26, p. 41; 27, p. 166

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

The information available is not sufficient to evaluate Tier A source hazardous waste quantity; therefore, hazardous constituent quantity is not scored (NS).

Hazardous Constituent Quantity (C) Value: NS

2.4.2.1.2 Hazardous Wastestream Quantity

The information available is not sufficient to evaluate Tier B source hazardous waste quantity; therefore, hazardous wastestream quantity is not scored (NS).

Hazardous Wastestream Quantity (W) Value: NS

2.4.2.1.3 Volume

Because there is at least one sample showing contamination at depth but the volume of the contaminated area has not been determined, the volume of contaminated soil is considered to be greater than 0 cubic yards [Ref. 24, p. 14; 26, pp. 8, 35, 41; 27, pp. 99 through 104, 156 through 160, 166, 325 through 342, 385 through 402]. Therefore, volume (V) is assigned a value of >0, but exact amount unknown [Ref. 1, p. 51591].

Dimension of source (yd³): >0

Volume (V) Assigned Value: >0

2.4.2.1.4 Area

Since the volume of the waste source can be determined, a value of 0 is given for area measurement [Ref. 1, p. 51591].

Area of source (ft²): N/A

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 5 is >0 for Tier C - Volume [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: >0

SOURCE DESCRIPTION

2.2 SOURCE CHARACTERIZATION

Number of the source: 7

Source Type of the source: Unallocated Source

Name and description of the source: Toxic Release Inventory (TRI) Air Release Data

Source 7 is an unallocated source to document the air release of chemicals from the Diaz facility. During its period of operation, Diaz had a history of recurring releases into the air from its facility. Hundreds of citizen odor complaints were lodged against the company [Ref. 12, p. 2; 13, p. 2]. In January 1977, a release of nitric acid and sulfuric acid into the air caused area residents to experience burning eyes and skin and a stinging sensation in their throats. Diaz paid for repainting cars damaged by the release. During a similar incident in December 1991, nearby residents were instructed to remain in their homes with the windows shut [Ref. 13, pp. 10, 11]. Fugitive releases of ammonia in January 1985 and chlorine gas in August 1990 resulted in odor complaints from nearby residents [Ref. 13, pp. 12, 14]. According to records maintained by EPA in its Toxics Release Inventory (TRI), Diaz reported releasing 188,105 pounds of TRI chemicals via air emissions from 1987 through 2001 [Ref. 3, pp. 13, 14].

Location of the source, with reference to a map of the site:

The hazardous substances associated with the unallocated source are known to be at the site but cannot be allocated to any specific source. Therefore, the location of the unallocated source with reference to a map of the site is undetermined.

Containment

Release via air pathway:

HRS requires separate evaluation of gas and particulate containment for each source at the site. Gas containment is evaluated for sources that contain gaseous hazardous substances (vapor pressure $\geq 10^{-9}$ Torr) and particulate containment is evaluated for sources that contain particulate hazardous substances (vapor pressure $\geq 10^{-1}$ Torr) [Ref. 1, pp. 51651 through 51653]. Source 7 contains gaseous and particulate hazardous substances (vapor pressures range from negligible to 3.54×10^4 Torr [Ref. 30, pp. 2, 3, 6, 13, 16, 18, 20, 21, 23, 27, 29, 31, 32, 36 through 40, 136, 141, 145, 148]), so Source 7 is evaluated for gas containment using HRS Table 6-3 and particulate containment using HRS Table 6-9.

The releases reported by Diaz show evidence of hazardous substance migration from unallocated source areas via the air pathway [Ref. 3, pp. 13 through 18]. This situation is not specifically listed in Table 6-3 or Table 6-9 and matches the category "All situations except those specifically listed below" for both tables. Based on the containment descriptions, Source 7 is assigned a gas containment factor value of 10 and a particulate containment factor value of 10 in the air migration pathway [Ref. 1, pp. 51652, 51653].

2.4.1 Hazardous Substances

According to records maintained by EPA in its Toxics Release Inventory (TRI), Diaz reported releasing 188,105 pounds of TRI chemicals via air emissions from 1987 through 2001 [Ref. 3, pp. 13, 14]. The following chemicals are reported by Diaz as being released through fugitive and stack air emissions during that time period [Ref. 3, pp. 15 through 18]:

<u>TRI Chemical</u>	<u>Fugitive Emissions (pounds)</u>	<u>Stack Emissions (pounds)</u>
Acetophenone	500	10
Ammonia	1,500	250
Ammonium nitrate	5	5
Ammonium sulfate	5	5
Benzene	11,000	8,300
Bromine	4,750	4,750
n-Butyl alcohol	2,600	1,610
Chlorine	2,100	2,450
Chlorobenzene	1,500	9,750
m-Cresol	650	700
1,2-Dibromoethane	1,055	1,055
1,2-Dichloroethane	2,850	3,350
Ethylbenzene	300	300
Hydrochloric acid	2,350	2,350
Methanol	3,250	3,750
Methylene chloride [Dichloromethane]	73,600	23,050
Nitric acid	2,100	2,355
Sulfuric acid	2,100	2,850
Toluene	2,250	2,250
Xylene (mixed isomers)	2,250	2,250

2.4.2 Hazardous Waste Quantity

2.4.2.1.1 Hazardous Constituent Quantity

Diaz reported releasing 188,105 pounds of TRI chemicals via fugitive and stack air emissions from 1987 through 2001 [Ref. 3, pp. 13, 14]. The hazardous constituent quantity (C) value is equal to the mass of chemicals released, in pounds [Ref. 1, p. 51590, 51591].

Hazardous Constituent Quantity (C) Value: 188,105

2.4.2.1.2 Hazardous Wastestream Quantity

Since the hazardous constituent quantity for Source 7 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), hazardous wastestream quantity is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Hazardous Wastestream Quantity (W) Value: 0

2.4.2.1.3 Volume

Since the hazardous constituent quantity for Source 7 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), the volume measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Volume (V) Assigned Value: 0

2.4.2.1.4 Area

Since the hazardous constituent quantity for Source 7 is adequately determined (that is, the total mass of all CERCLA hazardous substances in the source is known), the area measure is not evaluated and is assigned a value of 0 for the source [Ref. 1, p. 51591].

Area (A) Assigned Value: 0

2.4.2.1.5 Source Hazardous Waste Quantity Value

The source hazardous waste quantity value for Source 7 is 188,105 for Tier A - Hazardous Constituent Quantity [Ref. 1, p. 51591].

Source Hazardous Waste Quantity Value: 188,105

SITE SUMMARY OF SOURCE DESCRIPTIONS

<u>Source Number</u>	<u>Source Hazardous Waste Quantity Value</u>	<u>Containment</u>		<u>Air</u>	
		<u>Ground Water</u>	<u>Surface Water</u>	<u>Gas</u>	<u>Particulate</u>
1	0.15	NS	NS	10	N/A
2	18,480	NS	NS	3	N/A
3	172	NS	NS	3	N/A
4	214.5	NS	NS	3	3
5	20.8	NS	NS	10	10
6	>0	NS	NS	10	10
7	188,105	NS	NS	10	10

NS = Not Scored

N/A = Not Applicable (particulate substances not present in the source)

6.1 LIKELIHOOD OF RELEASE

6.1.1 Observed Release

TRI data reported to EPA by Diaz and a documented release to the air on January 5, 2002 form the basis for observed release by direct observation.

Direct Observation

Basis for Direct Observation

Historic Releases/TRI Data:

During its period of operation, Diaz had a history of recurring releases into the air from its facility. Hundreds of citizen odor complaints were lodged against the company [Ref. 12, p. 2; 13, p. 2]. In January 1977, a release of nitric acid and sulfuric acid into the air caused area residents to experience burning eyes and skin and a stinging sensation in their throats. Diaz paid for repainting cars damaged by the release. During a similar incident in December 1991, nearby residents were instructed to remain in their homes with the windows shut [Ref. 13, pp. 10, 11]. Fugitive releases of ammonia in January 1985, chlorine gas in August 1990, and m-bromofluorobenzene in March 1995 all resulted in odor complaints from nearby residents. Other compounds that were released to the air through fugitive emissions between 1977 and 1999 included the herbicides lactofen and trifluralin, nitrogen, potassium hydroxide, methanol, tetraethyl ammonium bromide, bromoacetophenone, and dimethyl sulfoxide gas [Ref. 13, pp. 11 through 16].

According to records maintained by EPA in its Toxics Release Inventory (TRI), Diaz reported releasing 188,105 pounds of TRI chemicals via air emissions from 1987 through 2001 [Ref. 3, pp. 13, 14]. The following chemicals are reported by Diaz as being released through fugitive and stack air emissions during that time period [Ref. 3, pp. 15 through 18]:

<u>TRI Chemical</u>	<u>Fugitive Emissions (pounds)</u>	<u>Stack Emissions (pounds)</u>
1,2-Dibromoethane	1,055	1,055
1,2-Dichloroethane	2,850	3,350
Acetophenone	500	10
Ammonia	1,500	250
Ammonium nitrate	5	5
Ammonium sulfate	5	5
Benzene	11,000	8,300
Bromine	4,750	4,750
Chlorine	2,100	2,450
Chlorobenzene	1,500	9,750
Dichloromethane	73,600	23,050
Ethylbenzene	300	300
Hydrochloric acid	2,350	2,350
m-Cresol	650	700
Methanol	3,250	3,750
n-Butyl alcohol	2,600	1,610
Nitric acid	2,100	2,355
Sulfuric acid	2,100	2,850
Toluene	2,250	2,250
Xylene (mixed isomers)	2,250	2,250

Basis for Direct Observation (continued)January 5, 2002 Release:

On January 5, 2002, an accidental release from a non-permitted emission point at Diaz splattered chemicals onto downwind residential properties [Ref. 9, p. 1; 13, pp. 7, 8; 14, p. 3]. The incident occurred when Diaz employees overheated a closed reactor vessel, leading to the rupture of a safety valve and release of approximately 75 gallons of technical grade CFP into the air [Ref. 13, p. 7; 14, pp. 2, 3]. CFP is a specialty organic chemical that Diaz was producing for a pharmaceutical company [Ref. 15, p. 1; 16, p. 4; 17, p. 1]. In addition to CFP, the release contained other phenolic compounds and toluene [Ref. 9, p. 1; 14, pp. 2, 3, 7]. The splash zone extended east-northeast of Diaz into the neighboring residential community, as evidenced by droplets of the chemical mixture deposited on vehicles, houses, yards, and vegetation [Ref. 14, pp. 3, 4, 5, 34, 35; 16, pp. 4, 5, 9, 24, 59 through 65].

Diaz reported that Reactor AR54 was being used to warm technical-grade CFP, pending purification of the material scheduled for January 7, 2002 [Ref. 14, p. 2]. Based on analysis conducted on December 19, 2001, the material consisted of approximately 61.2 percent CFP, various percentages of related compounds, and 1.6 percent toluene [Ref. 14, p. 7]. The reactor contained about 1,080 gallons of the CFP mixture and water. The process supervisor left instructions to keep the material at 65°C to 70°C over the weekend in preparation for the purification process. On January 5, 2002, the day shift assistant heated the material to about 60°C, turned off the heat, and closed the scrubber vent. When steam was reapplied during the afternoon shift, the scrubber vent was not reopened. At approximately 10:15 p.m., the temperature of the mixture had reached about 120°C and the pressure inside Reactor AR54 had reached 30 pounds per square inch (psi). The rupture disk, a type of safety valve to prevent the vessel from exploding, ruptured and allowed approximately 75 gallons of mixture to release from a non-permitted emission point [Ref. 14, pp. 2, 3].

When the release occurred, the wind was 5 to 8 mph from the southwest. Droplets of the CFP mixture splattered onto downwind residential properties along Jackson Street, Thomas Street, and South Main Street [Ref. 14, pp. 3, 4, 5, 34, 35; 16, pp. 4, 5, 9, 24, 59 through 65]. By January 16, 2002, NYSDOH had defined an Area of Greater Impact to extend more than ¼ mile from the reactor vessel based on the visual observation of droplets deposited on homes, yards, and vehicles [Ref. 16, pp. 11, 34; 20, pp. 1, 7]. Analytical results for wipe and vegetation samples collected by NYSDOH on January 14 and 15, 2002 indicated the presence of CFP and related compounds within the Area of Greater Impact. There was visual evidence of contamination in the form of staining, residues, or discoloration at many of the wipe sample locations and on the vegetation samples [Ref. 16, pp. 34, 39, 59 through 65, 70]. There was also visual evidence of the release on a swing set located 0.31 mile east-northeast of the reactor [Ref. 20, pp. 1, 2, 7].

On the night of the occurrence, a neighbor called 911 to report a strange odor in the house and the onset of burning eyes [Ref. 13, p. 8; 14, p. 3; 18, p. 4], and Diaz received several reports of odors in and east of the Village of Holley [Ref. 14, p. 34]. CFP has a characteristic phenolic odor [Ref. 14, p. 10]. A Diaz employee noticed the odor as he entered the Village on the evening of January 6, 2002, and a NYSDEC inspector observed the phenolic odor east of the plant on January 8 [Ref. 19, p. 1]. Odors from the release were also reported 12 miles away in the Village of Hilton [Ref. 13, p. 8; 16, p. 4]. Residents exposed to the release reported suffering from sore throats, headaches, nosebleeds, eye and skin irritation, nausea, vomiting, difficulty in breathing, skin rashes, kidney pain, and loss of appetite [Ref. 12, p. 1; 13, pp. 1, 2, 8; 15, p. 1; 16, p. 1, 23]. Diaz funded the relocation of 15 families from their homes near the plant to hotels, motels, and apartments [Ref. 9, p. 1; 12, p. 1; 14, pp. 4, 5; 15, p. 1; 16, p. 4]. CFP was detected in urine samples collected from some of those displaced residents in January, March, April, and May 2002 [Ref. 16, pp. 10 through 13, 34, 46].

In addition to the air releases, numerous spills to the ground, storm sewers, and nearby Sandy Creek also occurred throughout Diaz' operational history [Ref. 13, pp. 12 through 16]. A spill of ethyl chloropropane in October 1986 resulted in neighbor complaints of odors in their homes [Ref. 13, p. 13]. Several bromine spills were reported between 1986 and 1999. A bromine spill in October 1999 resulted in evacuation of the Diaz plant [Ref. 13, pp. 13, 15, 16]. Other chemicals that were spilled between 1985 and 1999 included hexane, nitric and sulfuric acids, process water and sludge, triethylamine, acetic anhydride, para-chlorobenzotrifluoride (PCBTF), ferric chloride anhydrous, dichlorobenzotrifluoride, dibromobenzene, acetic acid, and 3,4-dimethoxytoluene [Ref. 13, pp. 12 through 16]. Diaz reported surface water discharges of more than 10,000 pounds of TRI chemicals from 1987 through 2001 [Ref. 3, p. 14].

Chemical Analysis:

Not scored. This does not affect the listing decision for the site.

Level I Samples

For an observed release based on direct observation, targets are assigned Level II concentrations [Ref. 1, p. 51592]. Therefore, there are no Level I samples.

Hazardous Substances Released:TRI Chemicals

Acetophenone
 Ammonia
 Ammonium nitrate
 Ammonium sulfate
 Benzene
 Bromine
 n-Butyl alcohol
 Chlorine
 Chlorobenzene
 m-Cresol
 1,2-Dibromoethane
 1,2-Dichloroethane
 Ethylbenzene
 Hydrochloric acid
 Methanol
 Methylene chloride [Dichloromethane]
 Nitric acid
 Sulfuric acid
 Toluene
 Xylene (mixed isomers)

January 5, 2002 Release

2-Chloro-6-fluorophenol (CFP)
 4-Chloro-2-fluorophenol
 Chlorotoluenes
 2,4-Dichloro-6-fluorophenol
 Toluene

Air Observed Release Factor Value: 550

6.2 WASTE CHARACTERISTICS

6.2.1 Toxicity/Mobility

Hazardous Substance	Source Nos.	Toxicity Factor Value	Gas Mobility Factor Value*	Particulate Mobility Factor Value**	Toxicity/Mobility Factor Value (Table 6-13)	References
Acetophenone	5, 7, OR	NS	1	N/A	NS	1, p. 51655
Ammonia	7, OR	NS	1	N/A	NS	1, p. 51655
Ammonium nitrate	7, OR	NS	N/A	0.02	NS	1, p. 51655
Ammonium sulfate	7, OR	NS	N/A	0.02	NS	1, p. 51655
Anthracene	5, 6	10	0.002	0.0002	0.02	1, p. 51657; 2, p. BI-1
Benzene	7, OR	1,000	1	N/A	1,000	2, p. BI-2
Benzo(a)anthracene	5, 6	1,000	0.002	0.0002	2	1, p. 51657; 2, p. BI-2
Benzo(a)pyrene	5, 6	10,000	0.0002	0.0002	2	1, p. 51657; 2, p. BI-2
Benzo(b)fluoranthene	5, 6	NS	NS	NS	NS	
Benzo(g,h,i)perylene	5, 6	0	N/A	0.0002	0	1, p. 51657; 2, p. BI-2
Benzo(j,k)fluorene [Fluoranthene]	5, 6	100	0.002	0.0002	0.2	1, p. 51657; 2, p. BI-2
Benzo(k)fluoranthene	5, 6	100	0.0002	0.0002	0.02	1, p. 51657; 2, p. BI-2
Bis(2-ethylhexyl)phthalate	5	100	0.0002	0.0002	0.02	1, p. 51657; 2, p. BI-2
m-Bromoanisole	4	NS	NS	NS	NS	
Bromine	7, OR	NS	1	N/A	NS	1, p. 51655
m-Bromofluorobenzene	4	NS	NS	NS	NS	
Bromotoluene	3, 4	NS	NS	NS	NS	
Bromoxylenes	3	NS	NS	NS	NS	
Butanol [n-Butyl alcohol]	7, OR	NS	1	N/A	NS	1, p. 51655
Carbazole	5	10	0.02	0.0002	0.2	1, p. 51657; 2, p. BI-2
gamma-Chlordane	5	10,000	0.002	0.0002	20	1, p. 51657; 2, p. BI-3
Chlorine	7, OR	NS	1	N/A	NS	1, p. 51655
Chlorobenzene	7, OR	100	1	N/A	100	2, p. BI-3
2-Chloro-6-fluorophenol (CFP)	1, 5, OR	NS	1	N/A	NS	1, p. 51655
4-Chloro-2-fluorophenol	1, OR	NS	1	N/A	NS	1, p. 51655
Chlorotoluenes	1, OR	NS	1	N/A	NS	1, p. 51655

Notes:

* Assigned mobility factor value of 1 to each gaseous hazardous substance that meets criteria for observed release.

** Assigned mobility factor value of 0.02 to each particulate hazardous substance that meets criteria for observed release.

OR = Observed Release

NS = Not Scored

N/A = Not Applicable

Hazardous Substance	Source Nos.	Toxicity Factor Value	Gas Mobility Factor Value*	Particulate Mobility Factor Value**	Toxicity/Mobility Factor Value (Table 6-13)	References
Chrysene	5, 6	10	0.0002	0.0002	0.002	1, p. 51657; 2, p. BI-3
m-Cresol	7, OR	NS	1	N/A	NS	1, p. 51655
Dibenz(a,h)anthracene	5	10,000	N/A	0.0002	2	1, p. 51657; 2, p. BI-4
1,2-Dibromoethane (EDB)	7, OR	10,000	1	N/A	10,000	2, p. BI-4
1,2-Dichloroethane (EDC)	5, 6, 7, OR	100	1	N/A	100	2, p. BI-4
2,4-Dichloro-6-fluorophenol	1, OR	NS	1	N/A	NS	1, p. 51655
Endrin	5	10,000	0.002	0.0002	20	1, p. 51657; 2, p. BI-6
Ethyl benzene	7, OR	10	1	N/A	10	2, p. BI-6
Fluorobenzene	4	NS	NS	NS	NS	
Heptachlor	5	1,000	0.02	0.0002	20	1, p. 51657; 2, p. BI-6
Heptachlor epoxide	5	10,000	0.02	0.0002	200	1, p. 51657; 2, p. BI-6
Hydrobromic acid	3, 4	NS	NS	NS	NS	
Hydrochloric acid	7, OR	NS	1	N/A	NS	1, p. 51655
Indeno(1,2,3-cd)pyrene	5, 6	1,000	N/A	0.0002	0.2	1, p. 51657; 2, p. BI-8
Methanol	4, 7, OR	NS	1	N/A	NS	1, p. 51655
Methyl ethyl ketone [2-Butanone]	5, 6	1	1	N/A	1	2, p. BI-8
Methylene chloride [Dichloromethane]	7, OR	10	1	N/A	10	2, p. BI-9
Nitric acid	7, OR	NS	1	N/A	NS	1, p. 51655
Phenanthrene	5, 6	0	0.02	0.0002	0	1, p. 51657; 2, p. BI-9
Phenol	5	10	1	N/A	10	2, p. BI-9
Pyrene	5, 6	100	0.002	0.0002	0.2	1, p. 51657; 2, p. BI-10
Sodium bromide	4	NS	NS	NS	NS	
Sodium hydroxide	4	NS	NS	NS	NS	
Sulfuric acid	7, OR	NS	1	0.02	NS	1, p. 51655
Toluene	1, 3, 4, 7, OR	10	1	N/A	10	2, p. BI-11
Xylene	2, 3, 7, OR	100	1	N/A	100	2, p. BI-12

Notes:

* Assigned mobility factor value of 1 to each gaseous hazardous substance that meets criteria for observed release.

** Assigned mobility factor value of 0.02 to each particulate hazardous substance that meets criteria for observed release.

OR = Observed Release

NS = Not Scored

N/A = Not Applicable

Toxicity/Mobility Factor Value: 10,000

6.2.2 Hazardous Waste Quantity

<u>Source Number</u>	<u>Source Hazardous Waste Quantity (HWQ) Value (Section 2.4.2.1.5)</u>	<u>Is source hazardous constituent quantity data complete? (yes/no)</u>
1	0.15	No
2	18,480	Yes
3	172	No
4	214.5	No
5	20.8	No
6	> 0	No
2	188,105	Yes

Sum of Values: 206,992. (rounded to nearest integer as specified in HRS Section 2.4.2.2)

The sum corresponds to a hazardous waste quantity factor value of 10,000 in HRS Table 2-6. Therefore, a hazardous waste quantity factor value of 10,000 is assigned for the air pathway [Ref. 1, p. 51591].

6.2.3 Waste Characteristics Factor Category Value

The hazardous substance with the highest toxicity/mobility factor value is 1,2-dibromoethane (a.k.a. EDB), which corresponds to a toxicity/mobility factor value of 10,000, as shown previously (see Section 6.2.1).

Toxicity/Mobility Factor Value (10,000) x Hazardous
Waste Quantity Factor Value (10,000): 1×10^8

The product 1×10^8 corresponds to a Waste Characteristics Factor Category Value of 100 in HRS Table 2-7 [Ref. 1, p. 51592].

Hazardous Waste Quantity Factor Value: 10,000
Waste Characteristics Factor Category Value: 100

6.3 TARGETS

The observed release for the site is based on direct observation. For an observed release based on direct observation, targets are assigned Level II concentrations [Ref. 1, p. 51592]. Therefore, there are no Level I targets. The observed release by direct observation extends 0.31 mile east-northeast of the source from which the release occurred [Ref. 14, pp. 3, 4, 5, 34, 35; 16, pp. 4, 5, 9, 11, 24, 34, 39, 59 through 65, 70; 20, pp. 1, 2, 7]. Therefore, the populations within the 0- to ¼-mile and ¼- to ½-mile distance categories are subject to Level II concentrations [Ref. 1, p. 51660]. Conservative estimates of the populations within the 0- to ¼-mile and ¼- to ½-mile distance categories are approximately 359 and 736 persons, respectively [Ref. 20, p. 1, 3 through 7].

Level I Distance Categories

Distance categories subject to Level I concentrations: No Level I concentrations

Level II Distance Categories

Farthest Sample

Sample ID: Direct Observation

Location: fence/swing set along Geddes Street, between dentist's office and Murray Hollow historic monument

Reference: 20, p. 2

Nearest Source: Source 1 (Release from Reactor AR54, January 5, 2002)

Distance from the source in miles: 0.31

Reference: 20, pp. 1, 2, 7

Distance categories subject to Level II concentrations:

0 to ¼ mile

¼ to ½ mile

Actual Contamination Distance Categories

0 to ¼ mile

¼ to ½ mile

Potential Contamination Distance Categories

½ to 1 mile

1 to 2 miles

2 to 3 miles

3 to 4 miles

6.3.1 Nearest Individual Factor

There are no residences or regularly occupied buildings or areas that are subject to Level I concentrations, but several residences are subject to Level II concentrations. Therefore, a Nearest Individual Factor Value of 45 is assigned [Ref. 1, p. 51592, 51661; 20, p. 1].

Nearest Individual - Level II Concentrations

Residence, building or area subject to Level II concentrations: NYSDOH Location 1 - residential property on Jackson Street just east of the Diaz property, where NYSDOH collected soil, wipe, and vegetation samples indicating the presence of CFP [Ref. 16, pp. 59 through 62, 69, 70].

Location: hand rail, front porch, east-northeast of Reactor AR54
Nearest Source: Source 1
Distance from the nearest source in miles: 0.05
References: 16, pp. 60, 70

Nearest Individual Factor Value: 45

6.3.2 Population

6.3.2.2 Level I Concentrations

The Level I Concentrations Factor Value is 0 because there are no people subject to Level I concentrations [Ref. 1, pp. 51620, 51621]. For an observed release based on direct observation, targets are assigned Level II concentrations [Ref. 1, p. 51592].

6.3.2.3 Level II Concentrations

The observed release by direct observation to the air pathway documents Level II actual contamination within the 0- to ¼-mile and ½- to 1-mile distance categories [Ref. 1, pp. 51592, 51651, 51660, 51661]. The populations associated with those distance categories were determined by counting the houses on an aerial photograph within the ¼-mile and ½-mile distance rings, multiplying the house counts by the Orleans County average of 2.65 persons per household, and adding 7 day-care students documented for the ¼-mile pathway [Ref. 20, pp. 1 through 7]. The results are shown below:

<u>Distance Category</u>	<u>Population</u>	<u>Reference(s)</u>
0 - ¼	359.45	20, pp. 1 through 7
¼ - ½	736.7	20, pp. 1 through 7
Total	1,096.15	

Population Exposed to Level I Concentrations: 0
Level I Concentrations Factor Value: 0
Level II Concentrations Factor Value: 1,096.15

6.3.2.4 Potential Contamination

Region 2 SAT obtained 2000 Census population data and student populations for the distance categories with respect to the Reactor AR54 Stack (Source 1) [Ref. 20, pp. 1, 6, 8 through 54]. The total populations for each distance category subject to potential contamination are shown below:

<u>Distance Category</u>	<u>Population</u>	<u>Reference(s)</u>	<u>Population Range</u>	<u>Distance-Weighted Population Value</u>
½ - 1	2,052	20, pp. 1, 6, 15, 27	1,001-3,000	26
1 - 2	3,106	20, pp. 1, 6, 16, 17, 27	3,001-10,000	27
2 - 3	2,068	20, pp. 1, 6, 17, 18, 19, 27	1,001-3,000	4
3 - 4	5,185	20, pp. 1, 6, 19, 20, 21, 27	3,001-10,000	7
Total Distance-Weighted Population				64

The total distance-weighted population is divided by 10 to determine the Potential Contamination Factor Value. Since the result (6.4) is greater than 1, it is rounded to the nearest integer (6) [Ref. 1, p. 51661].

Distance-weighted Population Subject to Potential Contamination: 64
Potential Contamination Factor Value: 6

6.3.3 Resources

The Resources factor value is not scored because the listing decision is not significantly affected by this factor.

6.3.4 Sensitive Environments

The Sensitive Environments factor values are not scored because the listing decision is not significantly affected by those factors.

Resources Factor Value: NS
Sensitive Environment Actual Contamination Factor Value: NS
Sensitive Environments Potential Contamination Factor Value: NS